

SEQUENCE LISTING

<110> Chiang, Lillian Wei-Ming

<120> NARC10 and NARC16, Programmed Cell
Death-Associated Molecules and Uses Thereof

<130> 35800/242056

<150> US 60/262,306

<151> 2001-01-16

<160> 16

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<212> PRT

<213> Homo sapiens

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Gly Gln Met Ala Glu Glu Pro Gln Thr Pro Ala Glu Asn Ala Pro Lys
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Pro Lys Asn Asp Phe Ile Glu Ser Leu Pro Asn Ser Val Lys Cys Arg
 65           70           75           80
Val Leu Ala Leu Lys Lys Leu Gln Lys Arg Cys Asp Lys Ile Glu Ala
 85           90           95
Lys Phe Asp Lys Glu Phe Gln Ala Leu Glu Lys Lys Tyr Asn Asp Ile
 100          105          110
Tyr Lys Pro Leu Leu Ala Lys Ile Gln Glu Leu Thr Gly Glu Met Glu
 115          120          125
Gly Cys Ala Trp Thr Leu Glu Gly Glu Glu Glu Glu Glu Glu Tyr
 130          135          140
Glu Asp Asp Glu Glu Glu Gly Glu Asp Glu Glu Glu Glu Glu Ala Ala
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<222> (1)...(17)

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Met Ala Asp Ser Glu Asn Gln
1 5

ggg cct gcg gag cct agc cag gcg gcg gca gcg gcg gag gca gcg gca 163
Gly Pro Ala Glu Pro Ser Gln Ala Ala Ala Ala Ala Glu Ala Ala Ala
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gag gag gta atg gcg gaa ggc ggt gcg cag ggt gga gac tgt gac agc 211
Glu Glu Val Met Ala Glu Gly Gly Ala Gln Gly Gly Asp Cys Asp Ser
25 30 35

gcg gct ggt gac cct gac agc gcg gct ggt cag atg gct gag gag ccc 259
Ala Ala Gly Asp Pro Asp Ser Ala Ala Gly Gln Met Ala Glu Glu Pro
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Gln Thr Pro Ala Glu Asn Ala Pro Lys Pro Lys Asn Asp Phe Ile Glu
60 65 70

agc ctg cct aat tcg gtg aaa tgc cga gtc ctg gcc ctc aaa aag ctg 355
Ser Leu Pro Asn Ser Val Lys Cys Arg Val Leu Ala Leu Lys Lys Leu
75 80 85

cag aag cga tgc gat aag ata gaa gcc aaa ttt gat aag gaa ttt cag 403
Gln Lys Arg Cys Asp Lys Ile Glu Ala Lys Phe Asp Lys Glu Phe Gln
90 95 100

gct ctg gaa aaa aag tat aat gac atc tat aag ccc cta ctc gcc aag 451
Ala Leu Glu Lys Lys Tyr Asn Asp Ile Tyr Lys Pro Leu Leu Ala Lys
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atc caa gag ctc acc ggc gag atg gag ggg tgt gca tgg acc ttg gag 499
Ile Gln Glu Leu Thr Gly Glu Met Glu Gly Cys Ala Trp Thr Leu Glu
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Gly Glu Glu Glu Glu Glu Glu Glu Tyr Glu Asp Asp Glu Glu Glu Gly
140 145 150

gaa gac gag gag gag gag gag gct gcg gca gag gct gcc gcg ggg gcc 595
Glu Asp Glu Glu Glu Glu Glu Ala Ala Ala Glu Ala Ala Gly Ala
155 160 165

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Lys His Asp Asp Ala His Ala Glu Met Pro Asp Asp Ala Lys Lys *
170 175 180

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gaattatgtg tgagccagtg atctataaag aaacataagc ttaaagttgt ttatcactgt 1903
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2023
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Asn Pro Gln Asn Ala Val Ala Leu Leu Pro Glu Asn Asp Thr Gly Glu
35          40          45
Ser Met Leu Trp Lys Ala Thr Ile Val Leu Ser Arg Gly Val Ser Val
50          55          60
Gln Tyr Arg Tyr Phe Lys Gly Tyr Phe Leu Glu Pro Lys Thr Ile Gly
65          70          75          80
Gly Pro Cys Gln Val Ile Val His Lys Trp Glu Thr His Leu Gln Pro
85          90          95
Arg Ser Ile Thr Pro Leu Glu Ser Glu Ile Ile Ile Asp Asp Gly Gln
100          105          110
Phe Gly Ile His Asn Gly Val Glu Thr Leu Asp Ser Gly Trp Leu Thr
115          120          125
Cys Gln Thr Glu Ile Arg Leu Arg Leu His Tyr Ser Glu Lys Pro Pro
130          135          140
Val Ser Ile Thr Lys Lys Lys Leu Lys Lys Ser Arg Phe Arg Val Lys
145          150          155          160
Leu Thr Leu Glu Gly Leu Glu Glu Asp Asp Asp Asp Arg Val Ser Pro
165          170          175
Thr Val Leu His Lys Met Ser Asn Ser Leu Glu Ile Ser Leu Ile Ser
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Asp Asn Glu Phe Lys Cys Arg His Ser Gln Pro Glu Cys Gly Tyr Gly
195          200          205
Leu Gln Pro Asp Arg Trp Thr Glu Tyr Ser Ile Gln Thr Met Glu Pro

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210	215	220
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Leu Leu Ser Ser Thr Ile Ala Glu Ser Gly Lys Ser Ala Gly Ile Leu		255
	260	265
Thr Leu Pro Ile Met Ser Arg Asn Ser Arg Lys Thr Ile Gly Lys Val		270
	275	280
Arg Val Asp Tyr Ile Ile Ile Lys Pro Leu Pro Gly Tyr Ser Cys Asp		285
	290	295
Met Lys Ser Ser Phe Ser Lys Tyr Trp Lys Pro Arg Ile Pro Leu Asp		300
305	310	315
Val Gly His Arg Gly Ala Gly Asn Ser Thr Thr Thr Ala Gln Leu Ala		320
	325	330
Lys Val Gln Glu Asn Thr Ile Ala Ser Leu Arg Asn Ala Ala Ser His		335
	340	345
Gly Ala Ala Phe Val Glu Phe Asp Val His Leu Ser Lys Asp Phe Val		350
	355	360
Pro Val Val Tyr His Asp Leu Thr Cys Cys Leu Thr Met Lys Lys Lys		365
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Phe Asp Ala Asp Pro Val Glu Leu Phe Glu Ile Pro Val Lys Glu Leu		380
385	390	395
Thr Phe Asp Gln Leu Gln Leu Leu Lys Leu Thr His Val Thr Ala Leu		400
	405	410
Lys Ser Lys Asp Arg Lys Glu Ser Val Val Gln Glu Glu Asn Ser Phe		415
	420	425
Ser Glu Asn Gln Pro Phe Pro Ser Leu Lys Met Val Leu Glu Ser Leu		430
	435	440
Pro Glu Asp Val Gly Phe Asn Ile Glu Ile Lys Trp Ile Cys Gln Gln		445
	450	455
Arg Asp Gly Met Trp Asp Gly Asn Leu Ser Thr Tyr Phe Asp Met Asn		460
465	470	475
Leu Phe Leu Asp Ile Ile Leu Lys Thr Val Leu Glu Asn Ser Gly Lys		480
	485	490
Arg Arg Ile Val Phe Ser Ser Phe Asp Ala Asp Ile Cys Thr Met Val		495
	500	505
Arg Gln Lys Gln Asn Lys Tyr Pro Ile Leu Phe Leu Thr Gln Gly Lys		510
	515	520
Ser Glu Ile Tyr Pro Glu Leu Met Asp Leu Arg Ser Arg Thr Thr Pro		525
	530	535
Ile Ala Met Ser Phe Ala Gln Phe Glu Asn Leu Leu Gly Ile Asn Val		540
545	550	555
His Thr Glu Asp Leu Leu Arg Asn Pro Ser Tyr Ile Gln Glu Ala Lys		560
	565	570
Ala Lys Gly Leu Val Ile Phe Cys Trp Gly Asp Asp Thr Asn Asp Pro		575
	580	585
Glu Asn Arg Arg Lys Leu Lys Glu Leu Gly Val Asn Gly Leu Ile Tyr		590
	595	600
Asp Arg Ile Tyr Asp Trp Met Pro Glu Gln Pro Asn Ile Phe Gln Val		605
	610	615
Glu Gln Leu Glu Arg Leu Lys Gln Glu Leu Pro Glu Leu Lys Ser Cys		620
625	630	635
Leu Cys Pro Thr Val Ser Arg Phe Val Pro Ser Ser Leu Cys Gly Glu		640
	645	650
Ser Asp Ile His Val Asp Ala Asn Gly Ile Asp Asn Val Glu Asn Ala		655
	660	665
		670

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Lys Ser Arg Phe Arg Val Lys Leu Thr Leu Glu Gly Leu Glu Glu Asp	
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Asp Asp Asp Arg Val Ser Pro Thr Val Leu His Lys Met Ser Asn Ser	
170 175 180 185	
ttg gag ata tcc tta ata agc gac aat gag ttc aag tgc agg cat tca	747
Leu Glu Ile Ser Leu Ile Ser Asp Asn Glu Phe Lys Cys Arg His Ser	
190 195 200	
cag ccg gag tgt ggt tat ggc ttg cag cct gat cgt tgg aca gag tac	795
Gln Pro Glu Cys Gly Tyr Gly Leu Gln Pro Asp Arg Trp Thr Glu Tyr	
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agc ata cag acg atg gaa cca gat aac ctg gaa cta atc ttt gat ttt	843
Ser Ile Gln Thr Met Glu Pro Asp Asn Leu Glu Leu Ile Phe Asp Phe	
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ttc gaa gaa gat ctc agt gag cac gta gtt cag ggt gat gcc ctt cct	891
Phe Glu Glu Asp Leu Ser Glu His Val Val Gln Gly Asp Ala Leu Pro	
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Gly His Val Gly Thr Ala Cys Leu Leu Ser Ser Thr Ile Ala Glu Ser	
250 255 260 265	
gga aag agt gct gga att ctt act ctt ccc atc atg agc aga aat tcc	987
Gly Lys Ser Ala Gly Ile Leu Thr Leu Pro Ile Met Ser Arg Asn Ser	
270 275 280	
cgg aaa aca ata ggc aaa gtg aga gtt gac tat ata att att aag cca	1035
Arg Lys Thr Ile Gly Lys Val Arg Val Asp Tyr Ile Ile Ile Lys Pro	
285 290 295	
tta cca gga tac agt tgt gac atg aaa tct tca ttt tcc aag tat tgg	1083
Leu Pro Gly Tyr Ser Cys Asp Met Lys Ser Ser Phe Ser Lys Tyr Trp	
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aag cca aga ata cca ttg gat gtt ggc cat cga ggt gca gga aac tct	1131
Lys Pro Arg Ile Pro Leu Asp Val Gly His Arg Gly Ala Gly Asn Ser	
315 320 325	
aca aca act gcc cag ctg gct aaa gtt caa gaa aat act att gct tct	1179
Thr Thr Thr Ala Gln Leu Ala Lys Val Gln Glu Asn Thr Ile Ala Ser	
330 335 340 345	
tta aga aat gct gct agt cat ggt gca gcc ttt gta gaa ttt gac gta	1227
Leu Arg Asn Ala Ala Ser His Gly Ala Ala Phe Val Glu Phe Asp Val	
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cac ctt tca aag gac ttt gtg ccc gtg gta tat cat gat ctt acc tgt	1275
His Leu Ser Lys Asp Phe Val Pro Val Val Tyr His Asp Leu Thr Cys	
365 370 375	

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Cys Leu Thr Met Lys Lys Lys Phe Asp Ala Asp Pro Val Glu Leu Phe	
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gaa att cca gta aaa gaa tta aca ttt gac caa ctc cag ttg tta aag	1371
Glu Ile Pro Val Lys Glu Leu Thr Phe Asp Gln Leu Gln Leu Leu Lys	
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ctc act cat gtg act gca ctg aaa tct aag gat cgg aaa gaa tct gtg	1419
Leu Thr His Val Thr Ala Leu Lys Ser Lys Asp Arg Lys Glu Ser Val	
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gtt cag gag gaa aat tcc ttt tca gaa aat cag cca ttt cct tct ctt	1467
Val Gln Glu Glu Asn Ser Phe Ser Glu Asn Gln Pro Phe Pro Ser Leu	
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Lys Met Val Leu Glu Ser Leu Pro Glu Asp Val Gly Phe Asn Ile Glu	
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Ile Lys Trp Ile Cys Gln Gln Arg Asp Gly Met Trp Asp Gly Asn Leu	
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Ser Thr Tyr Phe Asp Met Asn Leu Phe Leu Asp Ile Ile Leu Lys Thr	
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Val Leu Glu Asn Ser Gly Lys Arg Arg Ile Val Phe Ser Ser Phe Asp	
490 495 500 505	
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Ala Asp Ile Cys Thr Met Val Arg Gln Lys Gln Asn Lys Tyr Pro Ile	
510 515 520	
cta ttt tta act caa gga aaa tct gag att tat cct gaa ctc atg gac	1755
Leu Phe Leu Thr Gln Gly Lys Ser Glu Ile Tyr Pro Glu Leu Met Asp	
525 530 535	
ctc aga tct cgg aca acc ccc att gca atg agc ttt gca cag ttt gaa	1803
Leu Arg Ser Arg Thr Thr Pro Ile Ala Met Ser Phe Ala Gln Phe Glu	
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Asn Leu Leu Gly Ile Asn Val His Thr Glu Asp Leu Leu Arg Asn Pro	
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tcc tat att caa gag gca aaa gct aag gga cta gtc ata ttc tgc tgg	1899
Ser Tyr Ile Gln Glu Ala Lys Ala Lys Gly Leu Val Ile Phe Cys Trp	
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Gly Asp Asp Thr Asn Asp Pro Glu Asn Arg Arg Lys Leu Lys Glu Leu	
590 595 600	
gga gtt aat ggt cta att tat gat agg ata tat gat tgg atg cct gaa	1995

Gly Val Asn Gly Leu Ile Tyr Asp Arg Ile Tyr Asp Trp Met Pro Glu
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Gln Pro Asn Ile Phe Gln Val Glu Gln Leu Glu Arg Leu Lys Gln Glu
620 625 630

ttg cca gag ctt aag agc tgt ttg tgt ccc act gtt agc cgc ttt gtt 2091
Leu Pro Glu Leu Lys Ser Cys Leu Cys Pro Thr Val Ser Arg Phe Val
635 640 645

ccc tca tct ttg tgt ggg gag tct gat atc cat gtg gat gcc aac ggc 2139
Pro Ser Ser Leu Cys Gly Glu Ser Asp Ile His Val Asp Ala Asn Gly
650 655 660 665

att gat aac gtg gag aat gct tag tttttattgc acagaggtca ttttgggggc 2193
Ile Asp Asn Val Glu Asn Ala *
670

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<213> Homo sapiens

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Pro His Thr Pro Ser Ser Tyr Ile Glu Thr Leu Pro Lys Ala Val Lys
50 55 60
Arg Arg Ile Asn Ala Leu Lys Gln Leu Gln Val Arg Cys Ala His Ile
65 70 75 80
Glu Ala Lys Phe Tyr Glu Glu Val His Asp Leu Glu Arg Lys Tyr Ala
85 90 95
Ala Leu Tyr Gln Pro Leu Phe Asp Lys Arg Arg Glu Phe Ile Thr Gly
100 105 110

Asp Val Glu Pro Thr Asp Ala Glu Ser Glu Trp His Ser Glu Asn Glu
 115 120 125
 Glu Glu Glu Lys Leu Ala Gly Asp Met Lys Ser Lys Val Val Val Thr
 130 135 140
 Glu Lys Ala Ala Ala Thr Ala Glu Glu Pro Asp Pro Lys Gly Ile Pro
 145 150 155 160
 Glu Phe Trp Phe Thr Ile Phe Arg Asn Val Asp Met Leu Ser Glu Leu
 165 170 175
 Val Gln Glu Tyr Asp Glu Pro Ile Leu Lys His Leu Gln Asp Ile Lys
 180 185 190
 Val Lys Phe Ser Asp Pro Gly Gln Pro Met Ser Phe Val Leu Glu Phe
 195 200 205
 His Phe Glu Pro Asn Asp Tyr Phe Thr Asn Ser Val Leu Thr Lys Thr
 210 215 220
 Tyr Lys Met Lys Ser Glu Pro Asp Lys Ala Asp Pro Phe Ser Phe Glu
 225 230 235 240
 Gly Pro Glu Ile Val Asp Cys Asp Gly Cys Thr Ile Asp Trp Lys Lys
 245 250 255
 Gly Lys Asn Val Thr Val Lys Thr Ile Lys Lys Lys Gln Lys His Lys
 260 265 270
 Gly Arg Gly Thr Val Arg Thr Ile Thr Lys Gln Val Pro Asn Glu Ser
 275 280 285
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 290 295 300
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 305 310 315 320
 His Phe Phe Arg Glu Arg Ile Val Pro Arg Ala Val Leu Tyr Phe Thr
 325 330 335
 Gly Glu Ala Ile Glu Asp Asp Asp Asn Phe Glu Glu Gly Glu Glu Gly
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 Ser His Thr Pro Ser Ser Tyr Ile Glu Thr Leu Pro Lys Ala Val Lys
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 Arg Arg Ile Asn Ala Leu Lys Gln Leu Gln Val Arg Cys Ala His Ile
 65 70 75 80
 Glu Ala Lys Phe Tyr Glu Glu Val His Asp Leu Glu Arg Lys Tyr Ala
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 Ala Leu Tyr Gln Pro Leu Phe Asp Lys Arg Arg Glu Phe Ile Thr Gly
 100 105 110
 Asp Val Glu Pro Thr Asp Ala Glu Ser Ala Trp His Ser Glu Asn Glu

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Glu Lys Glu Ala Ala Thr Val Glu Glu Leu Asn Pro Lys Gly Ile Pro		
145	150	155
Glu Phe Trp Phe Thr Ile Phe Arg Asn Val Asp Met Leu Ser Glu Leu		
165	170	175
Val Gln Glu Tyr Asp Glu Pro Ile Leu Lys His Leu Gln Asp Ile Lys		
180	185	190
Val Lys Phe Ser Asp Pro Gly Gln Pro Met Ser Phe Val Leu Glu Phe		
195	200	205
His Phe Glu Pro Asn Asp Tyr Phe Thr Asn Pro Val Leu Thr Lys Thr		
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Tyr Lys Met Lys Ser Glu Pro Asp Lys Ala Asp Pro Phe Ser Phe Glu		
225	230	235
Gly Pro Glu Ile Val Asp Cys Asp Gly Cys Thr Ile Asp Trp Lys Lys		
245	250	255
Gly Lys Asn Val Thr Val Lys Thr Ile Lys Lys Lys Gln Lys His Lys		
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Gly Arg Gly Thr Val Arg Thr Ile Thr Lys Gln Val Pro Asn Glu Ser		
275	280	285
Phe Phe Asn Phe Phe Ser Pro Leu Lys Ala Ser Gly Asp Gly Glu Ser		
290	295	300
Leu Asp Glu Asp Ser Glu Phe Thr Leu Ala Ser Asp Phe Glu Ile Gly		
305	310	315
His Phe Phe Arg Glu Arg Ile Val Pro Arg Ala Val Leu Tyr Phe Thr		
325	330	335
Gly Glu Ala Ile Glu Asp Asp Asp Asn Phe Glu Glu Gly Glu Glu Gly		
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Glu Glu Glu Glu Leu Glu Gly Asp Glu Glu Gly Glu Asp Glu Asp Asp		
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Ala Asp Val Asn Pro Lys Val		
370	375	

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<400> 7

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Arg Gly Glu Asp Ala Ala Ala Gly Leu Gly Asp Asp Gly Lys Cys Gly		
35	40	45
Glu Glu Ala Ala Ala Gly Leu Gly Glu Glu Gly Glu Asn Gly Glu Asp		
50	55	60
Thr Ala Ala Gly Ser Gly Glu Asp Gly Lys Lys Gly Gly Asp Thr Asp		
65	70	75
Glu Asp Ser Glu Ala Asp Arg Pro Lys Gly Leu Ile Gly Tyr Val Leu		
85	90	95
Asp Thr Asp Phe Val Glu Ser Leu Pro Val Lys Val Lys Tyr Arg Val		
100	105	110
Leu Ala Leu Lys Lys Leu Gln Thr Arg Ala Ala Asn Leu Glu Ser Lys		
115	120	125

Phe Leu Arg Glu Phe His Asp Ile Glu Arg Lys Phe Ala Glu Met Tyr
 130 135 140
 Gln Pro Leu Leu Glu Lys Arg Arg Gln Ile Ile Asn Ala Ile Tyr Glu
 145 150 155 160
 Pro Thr Glu Glu Glu Cys Glu Tyr Lys Ser Asp Ser Glu Asp Cys Asp
 165 170 175
 Asp Glu Glu Met Cys His Glu Glu Met Tyr Gly Asn Glu Glu Gly Met
 180 185 190
 Val His Glu Tyr Val Asp Glu Asp Asp Gly Tyr Glu Asp Tyr Tyr Tyr
 195 200 205
 Asp Tyr Ala Val Glu Glu Glu Glu Glu Glu Glu Asp Asp Ile
 210 215 220
 Glu Ala Thr Gly Glu Glu Asn Lys Glu Glu Glu Asp Pro Lys Gly Ile
 225 230 235 240
 Pro Asp Phe Trp Leu Thr Val Leu Lys Asn Val Asp Thr Leu Thr Pro
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 Leu Ile Lys Lys Tyr Asp Glu Pro Ile Leu Lys Leu Leu Thr Asp Ile
 260 265 270
 Lys Val Lys Leu Ser Asp Pro Gly Glu Pro Leu Ser Phe Thr Leu Glu
 275 280 285
 Phe His Phe Lys Pro Asn Glu Tyr Phe Lys Asn Glu Leu Leu Thr Lys
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 Thr Tyr Val Leu Lys Ser Lys Leu Ala Tyr Tyr Asp Pro His Pro Tyr
 305 310 315 320
 Arg Gly Thr Ala Ile Glu Tyr Ser Thr Gly Cys Glu Ile Asp Trp Asn
 325 330 335
 Glu Gly Lys Asn Val Thr Leu Lys Thr Ile Lys Lys Lys Gln Lys His
 340 345 350
 Arg Ile Trp Gly Thr Ile Arg Thr Val Thr Glu Asp Phe Pro Lys Asp
 355 360 365
 Ser Phe Phe Asn Phe Phe Ser Pro His Gly Ile Thr Ser Asn Gly Arg
 370 375 380
 Asp Gly Asn Asp Asp Phe Leu Leu Gly His Asn Leu Arg Thr Tyr Ile
 385 390 395 400
 Ile Pro Arg Ser Val Leu Phe Phe Ser Gly Asp Ala Leu Glu Ser Gln
 405 410 415
 Gln Glu Gly Val Val Arg Glu Val Asn Asp Ala Ile Tyr Asp Lys Ile
 420 425 430
 Ile Tyr Asp Asn Trp Met Ala Ala Ile Glu Glu Val Lys Ala Cys Cys
 435 440 445
 Lys Asn Leu Glu Ala Leu Val Glu Asp Ile Asp Arg
 450 455 460

<210> 8
 <211> 460
 <212> PRT
 <213> Mus musculus

<400> 8
 Met Ala Glu Ser Val Asp His Lys Glu Leu Ser Glu Ser Asn Gln Glu
 1 5 10 15
 Glu Leu Gly Ser Gln Val Met Ala Glu Gly Pro Gly Glu Ser Gln Asp
 20 25 30
 Arg Ser Glu Gly Val Ser Ile Glu Pro Gly Asp Gly Gly Gln His Gly
 35 40 45
 Glu Glu Thr Val Ala Ala Gly Val Gly Glu Glu Gly Lys Gly Glu Glu

50		55		60
Ala Ala Ala Gly Ser	Gly Glu Asp Ala Gly Lys Cys Gly Gly Thr Asp			
65	70	75	80	
Glu Asp Ser Asp Ser	Asp Arg Pro Lys Gly Leu Ile Gly Tyr Leu Leu			
85	90	95		
Asp Thr Asp Phe Val	Glu Ser Leu Pro Val Lys Val Lys Cys Arg Val			
100	105	110		
Leu Ala Leu Lys Lys	Leu Gln Thr Arg Ala Ala His Leu Glu Ser Lys			
115	120	125		
Phe Leu Arg Glu Phe	His Asp Ile Glu Arg Lys Phe Ala Glu Met Tyr			
130	135	140		
Gln Pro Leu Leu Glu	Lys Arg Arg Gln Ile Ile Asn Ala Val Tyr Glu			
145	150	155	160	
Pro Thr Glu Glu Glu	Cys Glu Tyr Lys Ser Asp Cys Glu Asp Tyr Phe			
165	170	175		
Glu Glu Glu Met Asp	Glu Glu Glu Glu Thr Asn Gly Asn Glu Asp Gly			
180	185	190		
Met Val His Glu Tyr	Val Asp Glu Asp Asp Gly Tyr Glu Asp Cys Tyr			
195	200	205		
Tyr Asp Tyr Asp Asp	Glu Glu Glu Glu Glu Glu Glu Asp Asp Ser Ala			
210	215	220		
Gly Ala Thr Gly Gly	Glu Glu Val Asn Glu Glu Asp Pro Lys Gly Ile			
225	230	235	240	
Pro Asp Phe Trp Leu	Thr Val Leu Lys Asn Val Glu Ala Leu Thr Pro			
245	250	255		
Met Ile Lys Lys Tyr	Asp Glu Pro Ile Leu Lys Leu Leu Thr Asp Ile			
260	265	270		
Lys Val Lys Leu Ser	Asp Pro Gly Glu Pro Leu Ser Phe Thr Leu Glu			
275	280	285		
Phe His Phe Lys Pro	Asn Glu Tyr Phe Lys Asn Glu Leu Leu Thr Lys			
290	295	300		
Thr Tyr Val Leu Lys	Ser Lys Leu Ala Cys Tyr Asp Pro His Pro Tyr			
305	310	315	320	
Arg Gly Thr Ala Ile	Glu Tyr Ala Thr Gly Cys Asp Ile Asp Trp Asn			
325	330	335		
Glu Gly Lys Asn Val	Thr Leu Arg Thr Ile Lys Lys Lys Gln Arg His			
340	345	350		
Arg Val Trp Gly Thr	Val Arg Thr Val Thr Glu Asp Phe Pro Lys Asp			
355	360	365		
Ser Phe Phe Asn Phe	Phe Ser Pro His Gly Ile Ser Leu Asn Gly Gly			
370	375	380		
Val Glu Asn Asp Asp	Phe Leu Leu Gly His Asn Leu Arg Thr Tyr Ile			
385	390	395	400	
Ile Pro Arg Ser Val	Leu Phe Phe Ser Gly Asp Ala Leu Glu Ser Gln			
405	410	415		
Gln Glu Gly Val Val	Arg Glu Val Asn Asp Glu Ile Tyr Asp Lys Ile			
420	425	430		
Ile Tyr Asp Asp Trp	Met Ala Ala Ile Glu Glu Val Lys Ala Cys Cys			
435	440	445		
Lys Asn Leu Glu Ala	Leu Val Glu Asp Ile Asp Arg			
450	455	460		

<210> 9
 <211> 358
 <212> PRT
 <213> Glycine max

1	5	10	15
Gly Glu Val Phe Ala Met Cys Gly Asn Cys Asp Ala Leu Gly Asn Trp			
20	25	30	
Ser Pro Gln Asn Ala Val Pro Leu Thr Glu Ser Glu Thr Gly Glu Ser			
35	40	45	
Val Trp Lys Ala Val Ile Val Leu Ser Arg Gly Met Ser Val Lys Tyr			
50	55	60	
Arg Tyr Phe Arg Gly Cys Phe Leu Glu Pro Lys Thr Ile Gly Gly Pro			
65	70	75	80
Cys Gln Val Ile Val His Lys Trp Glu Thr His Leu Gln Pro Arg Ser			
85	90	95	
Ile Thr Pro Leu Glu Asn Glu Ile Ile Asp Asp Gly Gln Phe Gly			
100	105	110	
Ile His Asn Gly Val Glu Thr Leu Asp Ser Gly Trp Leu Thr Cys Gln			
115	120	125	
Thr Glu Ile Arg Leu Arg Leu His Phe Ser Glu Lys Pro Pro Val Ser			
130	135	140	
Ile Thr Lys Lys Lys Phe Lys Lys Ser Arg Phe Arg Val Lys Leu Thr			
145	150	155	160
Leu Glu Gly Leu Glu Glu Asp Asp Asp Asp Asp Lys Ala Ser Pro			
165	170	175	
Thr Val Leu His Lys Met Ser Asn Ser Leu Glu Ile Ser Leu Ile Ser			
180	185	190	
Asp Asn Glu Phe Lys Cys Arg His Ser Gln Pro Glu Cys Gly Tyr Gly			
195	200	205	
Leu Gln Pro Asp Arg Trp Thr Glu Tyr Ser Ile Gln Thr Met Glu Pro			
210	215	220	
Asp Asn Leu Glu Leu Ile Phe Asp Phe Phe Glu Glu Asp Leu Ser Glu			
225	230	235	240
His Val Val Gln Gly Asp Val Leu Pro Gly His Val Gly Thr Ala Cys			
245	250	255	
Leu Leu Ser Ser Thr Ile Ala Glu Ser Glu Arg Ser Ala Gly Ile Leu			
260	265	270	
Thr Leu Pro Ile Met Ser Arg Ser Ser Arg Lys Thr Ile Gly Lys Val			
275	280	285	
Arg Val Asp Phe Ile Ile Ile Lys Pro Leu Pro Gly Tyr Ser Cys Ser			
290	295	300	
Met Gln Ser Ser Phe Ser Lys Tyr Trp Lys Pro Arg Ile Pro Leu Asp			
305	310	315	320
Val Gly His Arg Gly Ala Gly Asn Ser Thr Thr Thr Ala Lys Leu Ala			
325	330	335	
Lys Val Gln Glu Asn Thr Ile Ala Ser Leu Arg Asn Ala Ala Ser His			
340	345	350	
Gly Ala Ala Phe Val Glu Phe Asp Val His Leu Ser Lys Asp Leu Val			
355	360	365	
Pro Val Val Tyr His Asp Leu Thr Cys Cys Leu Thr Met Lys Arg Lys			
370	375	380	
Tyr Glu Ala Asp Pro Val Glu Leu Phe Glu Ile Pro Val Lys Glu Leu			
385	390	395	400
Thr Phe Asp Gln Leu Gln Leu Leu Lys Leu Ser His Val Thr Ala Leu			
405	410	415	
Lys Thr Lys Asp Gln Lys Gln Cys Met Ala Glu Glu Glu Asn Ser Phe			
420	425	430	
Ser Glu Asn Gln Pro Phe Pro Ser Leu Lys Met Val Leu Glu Ser Leu			
435	440	445	
Pro Glu Asn Val Gly Phe Asn Ile Glu Ile Lys Trp Ile Cys Gln His			
450	455	460	

Arg Asp Gly Val Trp Asp Gly Asn Leu Ser Thr Tyr Phe Asp Met Asn
 465 470 475 480
 Ala Phe Leu Asp Ile Ile Leu Lys Thr Val Leu Glu Asn Ser Gly Lys
 485 490 495
 Arg Arg Ile Val Phe Ser Ser Phe Asp Ala Asp Ile Cys Thr Met Val
 500 505 510
 Arg Gln Lys Gln Asn Lys Tyr Pro Ile Leu Phe Leu Thr Gln Gly Lys
 515 520 525
 Ser Asp Ile Tyr Pro Glu Leu Met Asp Leu Arg Ser Arg Thr Thr Pro
 530 535 540
 Ile Ala Met Ser Phe Ala Gln Phe Glu Asn Ile Leu Gly Ile Asn Ala
 545 550 555 560
 His Thr Glu Asp Leu Leu Arg Asn Pro Ser Tyr Val Gln Glu Ala Lys
 565 570 575
 Asp Lys Gly Leu Val Ile Phe Cys Trp Gly Asp Asp Thr Asn Asp Pro
 580 585 590
 Glu Asn Arg Arg Lys Leu Lys Glu Phe Gly Val Asn Gly Leu Ile Tyr
 595 600 605
 Asp Arg Tyr Leu Phe Phe Val Lys Asn Leu His Gly Ile Val Gln Thr
 610 615 620
 Val
 625

<210> 11
 <211> 243
 <212> PRT
 <213> Bacillus subtilis

<400> 11
 Leu Tyr Ile Ile Ala His Arg Gly Ala Ser Gly Tyr Ala Pro Glu Asn
 1 5 10 15
 Thr Ile Ala Ala Phe Asp Leu Ala Val Lys Met Asn Ala Asp Met Ile
 20 25 30
 Glu Leu Asp Val Gln Leu Thr Lys Asp Arg Gln Ile Val Val Ile His
 35 40 45
 Asp Asp Arg Val Asp Arg Thr Thr Asn Gly Ser Gly Phe Val Lys Asp
 50 55 60
 Phe Thr Leu Glu Glu Leu Gln Lys Leu Asp Ala Gly Ser Trp Tyr Gly
 65 70 75 80
 Pro Ala Phe Gln Gly Glu Arg Ile Pro Thr Leu Glu Ala Val Leu Lys
 85 90 95
 Arg Tyr His Lys Lys Ile Gly Leu Leu Ile Glu Leu Lys Gly His Pro
 100 105 110
 Ser Gln Val Gly Ile Glu Glu Glu Val Gly Gln Leu Leu Gly Gln Phe
 115 120 125
 Ser Phe Ser Ile Asn Asn Ile Val Gln Ser Phe Gln Phe Arg Ser Val
 130 135 140
 Gln Arg Phe Arg Glu Leu Tyr Pro Ser Ile Pro Thr Ala Val Ile Thr
 145 150 155 160
 Arg Pro Asn Phe Gly Met Leu Ser Arg Asn Gln Met Lys Ala Phe Arg
 165 170 175
 Ser Phe Ala Asn Tyr Val Asn Ile Lys His Thr Arg Leu Asn Arg Leu
 180 185 190
 Met Ile Gly Ser Ile Asn Lys Asn Gly Leu Asn Ile Phe Ala Trp Thr
 195 200 205
 Val Asn Asn Gln Lys Thr Ala Ala Lys Leu Gln Ala Met Gly Val Asp

210	215	220
Gly Ile Val Thr Asp Tyr Pro Asp Phe Ile Ile Lys Asp Gly Lys His		
225	230	235
Glu Asn Ile		240

<210> 12
 <211> 358
 <212> PRT
 <213> Escherichia coli K12

<400> 12

Met Lys Leu Thr Leu Lys Asn Leu Ser Met Ala Ile Met Met Ser Thr	
1 5 10 15	
Ile Val Met Gly Ser Ser Ala Met Ala Ala Asp Ser Asn Glu Lys Ile	
20 25 30	
Val Ile Ala His Arg Gly Ala Ser Gly Tyr Leu Pro Glu His Thr Leu	
35 40 45	
Pro Ala Lys Ala Met Ala Tyr Ala Gln Gly Ala Asp Tyr Leu Glu Gln	
50 55 60	
Asp Leu Val Met Thr Lys Asp Asp Asn Leu Val Val Leu His Asp His	
65 70 75 80	
Tyr Leu Asp Arg Val Thr Asp Val Ala Asp Arg Phe Pro Asp Arg Ala	
85 90 95	
Arg Lys Asp Gly Arg Tyr Tyr Ala Ile Asp Phe Thr Leu Asp Glu Ile	
100 105 110	
Lys Ser Leu Lys Phe Thr Glu Gly Phe Asp Ile Glu Asn Gly Lys Lys	
115 120 125	
Val Gln Thr Tyr Pro Gly Arg Phe Pro Met Gly Lys Ser Asp Phe Arg	
130 135 140	
Val His Thr Phe Glu Glu Ile Glu Phe Val Gln Gly Leu Asn His	
145 150 155 160	
Ser Thr Gly Lys Asn Ile Gly Ile Tyr Pro Glu Ile Lys Ala Pro Trp	
165 170 175	
Phe His His Gln Glu Gly Lys Asp Ile Ala Ala Lys Thr Leu Glu Val	
180 185 190	
Leu Lys Lys Tyr Gly Tyr Thr Gly Lys Asp Asp Lys Val Tyr Leu Gln	
195 200 205	
Cys Phe Asp Ala Asp Glu Leu Lys Arg Ile Lys Asn Glu Leu Glu Pro	
210 215 220	
Lys Met Gly Met Glu Leu Asn Leu Val Gln Leu Ile Ala Tyr Thr Asp	
225 230 235 240	
Trp Asn Glu Thr Gln Gln Lys Gln Pro Asp Gly Ser Trp Val Asn Tyr	
245 250 255	
Asn Tyr Asp Trp Met Phe Lys Pro Gly Ala Met Lys Gln Val Ala Glu	
260 265 270	
Tyr Ala Asp Gly Ile Gly Pro Asp Tyr His Met Leu Ile Glu Glu Thr	
275 280 285	
Ser Gln Pro Gly Asn Ile Lys Leu Thr Gly Met Val Gln Asp Ala Gln	
290 295 300	
Gln Asn Lys Leu Val Val His Pro Tyr Thr Val Arg Ser Asp Lys Leu	
305 310 315 320	
Pro Glu Tyr Thr Pro Asp Val Asn Gln Leu Tyr Asp Ala Leu Tyr Asn	
325 330 335	
Lys Ala Gly Val Asn Gly Leu Phe Thr Asp Phe Pro Asp Lys Ala Val	
340 345 350	

Lys Phe Leu Asn Lys Glu
355

<210> 13
<211> 247
<212> PRT
<213> Escherichia coli K12

<400> 13
Met Ser Asn Trp Pro Tyr Pro Arg Ile Val Ala His Arg Gly Gly Gly
1 5 10 15
Lys Leu Ala Pro Glu Asn Thr Leu Ala Ser Ile Asp Val Gly Ala Lys
20 25 30
Tyr Gly His Lys Met Ile Glu Phe Asp Ala Lys Leu Ser Lys Asp Gly
35 40 45
Glu Ile Phe Leu Leu His Asp Asp Asn Leu Glu Arg Thr Ser Asn Gly
50 55 60
Trp Gly Val Ala Gly Glu Leu Asn Trp Gln Asp Leu Leu Arg Val Asp
65 70 75 80
Ala Gly Ser Trp Tyr Ser Lys Met Phe Lys Gly Glu Pro Leu Pro Leu
85 90 95
Leu Ser Gln Val Ala Glu Arg Cys Arg Glu His Gly Met Met Ala Asn
100 105 110
Ile Glu Ile Lys Pro Thr Thr Gly Thr Gly Pro Leu Thr Gly Lys Met
115 120 125
Val Ala Leu Ala Ala Arg Glu Leu Trp Ala Gly Met Thr Pro Pro Leu
130 135 140
Leu Ser Ser Phe Glu Ile Asp Ala Leu Glu Ala Ala Gln Gln Ala Ala
145 150 155 160
Pro Glu Leu Pro Arg Gly Leu Leu Leu Asp Glu Trp Arg Asp Asp Trp
165 170 175
Arg Glu Leu Thr Ala Arg Leu Gly Cys Val Ser Ile His Leu Asn His
180 185 190
Lys Leu Leu Asn Lys Ala Arg Val Met Gln Leu Lys Asp Ala Gly Leu
195 200 205
Arg Ile Leu Val Tyr Thr Val Asn Lys Pro Gln Arg Ala Ala Glu Leu
210 215 220
Leu Arg Trp Gly Val Asp Cys Ile Cys Thr Asp Ala Ile Asp Val Ile
225 230 235 240
Gly Pro Asn Phe Thr Ala Gln
245

<210> 14
<211> 256
<212> PRT
<213> Mycobacterium tuberculosis

<400> 14
Met Glu Phe Leu Arg His Gly Gly Arg Ile Ala Met Ala His Arg Gly
1 5 10 15
Phe Thr Ser Phe Arg Leu Pro Met Asn Ser Met Gly Ala Phe Gln Glu
20 25 30
Ala Ala Lys Leu Gly Phe Arg Tyr Ile Glu Thr Asp Val Arg Ala Thr
35 40 45
Arg Asp Gly Val Ala Val Ile Leu His Asp Arg Arg Leu Ala Pro Gly

50		55		60
Val Gly Leu Ser Gly Ala Val Asp Arg Leu Asp Trp Arg Asp Val Arg				
65	70	75	80	
Lys Ala Gln Leu Gly Ala Gly Gln Ser Ile Pro Thr Leu Glu Asp Leu				
	85	90	95	
Leu Thr Ala Leu Pro Asp Met Arg Val Asn Ile Asp Ile Lys Ala Ala				
	100	105	110	
Ser Ala Ile Glu Pro Thr Val Asn Val Ile Glu Arg Cys Asn Ala His				
	115	120	125	
Asn Arg Val Leu Ile Gly Ser Phe Ser Glu Arg Arg Arg Arg Ala				
	130	135	140	
Leu Arg Leu Leu Thr Lys Arg Val Ala Ser Ser Ala Gly Thr Gly Ala				
	145	150	155	160
Leu Leu Ala Trp Leu Thr Ala Arg Pro Leu Gly Ser Arg Ala Tyr Ala				
	165	170	175	
Trp Arg Met Met Arg Asp Ile Asp Cys Val Gln Leu Pro Ser Arg Leu				
	180	185	190	
Gly Gly Val Pro Val Ile Thr Pro Ala Arg Val Arg Gly Phe His Ala				
	195	200	205	
Ala Gly Arg Gln Val His Ala Trp Thr Val Asp Glu Pro Asp Val Met				
	210	215	220	
His Thr Leu Leu Asp Met Asp Val Asp Gly Ile Ile Thr Asp Arg Ala				
	225	230	235	240
Asp Leu Leu Arg Asp Val Leu Ile Ala Arg Gly Glu Trp Asp Gly Ala				
	245	250	255	

<210> 15
 <211> 274
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 15
Met Thr Trp Ala Asp Glu Val Leu Ala Gly His Pro Phe Val Val Ala
1 5 10 15
His Arg Gly Ala Ser Ala Ala Arg Pro Glu His Thr Leu Ala Ala Tyr
20 25 30
Asp Leu Ala Leu Lys Glu Gly Ala Asp Gly Val Glu Cys Asp Val Arg
35 40 45
Leu Thr Arg Asp Gly His Leu Val Cys Val His Asp Arg Arg Leu Asp
50 55 60
Arg Thr Ser Thr Gly Ala Gly Leu Val Ser Thr Met Thr Leu Ala Gln
65 70 75 80
Leu Arg Glu Leu Glu Tyr Gly Ala Trp His Asp Ser Trp Arg Pro Asp
85 90 95
Gly Ser His Gly Asp Thr Ser Leu Leu Thr Leu Asp Ala Leu Val Ser
100 105 110
Leu Val Leu Asp Trp His Arg Pro Val Lys Ile Phe Val Glu Thr Lys
115 120 125
His Pro Val Arg Tyr Gly Ser Leu Val Glu Asn Lys Leu Leu Ala Leu
130 135 140
Leu His Arg Phe Gly Ile Ala Ala Pro Ala Ser Ala Asp Arg Ser Arg
145 150 155 160
Ala Val Val Met Ser Phe Ser Ala Ala Ala Val Trp Arg Ile Arg Arg
165 170 175
Ala Ala Pro Leu Leu Pro Thr Val Leu Leu Gly Lys Thr Pro Arg Tyr
180 185 190

Leu Thr Ser Ser Ala Ala Thr Ala Val Gly Ala Thr Ala Val Gly Pro
 195 200 205
 Ser Leu Pro Ala Leu Lys Glu Tyr Pro Gln Leu Val Asp Arg Ser Ala
 210 215 220
 Ala Gln Gly Arg Ala Val Tyr Cys Trp Asn Val Asp Glu Tyr Glu Asp
 225 230 235 240
 Ile Asp Phe Cys Arg Glu Val Gly Val Ala Trp Ile Gly Thr His His
 245 250 255
 Pro Gly Arg Thr Lys Ala Trp Leu Glu Asp Gly Arg Ala Asn Gly Thr
 260 265 270
 Thr Arg

<210> 16
 <211> 241
 <212> PRT
 <213> Mycoplasma pneumoniae

<400> 16
 Met Leu Lys Arg Gln Leu Leu Leu Ala His Arg Gly Tyr Ser Asp Ile
 1 5 10 15
 Ala Pro Glu Asn Thr Gln Leu Ala Phe Glu Leu Ala Phe Gln Tyr Arg
 20 25 30
 Phe Asp Gly Val Glu Leu Asp Val His Leu Thr Lys Asp Gly Glu Leu
 35 40 45
 Val Ile Ile His Asp Glu Thr Thr Arg Thr Ala Leu Val Asp Lys
 50 55 60
 Thr Ile Glu Leu Glu Thr Leu Ala Ser Leu Lys Gln Asp Asp His Ser
 65 70 75 80
 Ala Phe Phe Lys Phe Lys Thr Gln Pro Gln Pro Ile Met Thr Leu Lys
 85 90 95
 Glu Phe Phe Asp Gln Tyr Leu Asp Lys Phe Gln Leu Ile Asn Val Glu
 100 105 110
 Ile Lys Thr Asp Gln Lys Glu Tyr Pro Gly Ile Glu Ala Lys Ile Asp
 115 120 125
 Ala Leu Ala Gln Gln Tyr Gly Lys Lys Val Ile Glu Lys Val Val Phe
 130 135 140
 Ser Ser Phe Asn Phe Ala Ser Leu Gln Arg Leu Tyr Asp Ile Asn Pro
 145 150 155 160
 Asn Tyr Gln Ile Ala Phe Leu Phe Trp Thr Lys Lys Gln Phe Gln Ala
 165 170 175
 Val Asp Ala Leu Lys Ile Lys Gln Val Cys Gln Tyr Leu His Pro Trp
 180 185 190
 Thr Asn Ile Tyr Glu Lys Phe Pro Asp Met Val Leu Ser Leu Gln Leu
 195 200 205
 Pro Leu Gly Leu Trp Thr Leu Asn Ser Glu Val Lys Phe His Gln Phe
 210 215 220
 Arg Gln Asp Arg Met Val Tyr Ala Gln Ile Ala Asn Lys Lys Phe Glu
 225 230 235 240
 Val